ABSTRACT

General methods for monitoring the activity of MurG, a GlcNAc transferase involved in bacterial cell wall biosynthesis, is disclosed. More particularly, the synthesis of simplified substrate analogs of Lipid I (the natural substrate for MurG), which function as acceptors for UDP-GlcNAc in an enzymatic reaction catalyzed by MurG, is described. Assays using the substrate analogs of the invention are further disclosed, which are useful for identifying a variety of other substrates, including inhibitors of MurG activity, for facilitating mechanistic and/or structural studies of the enzyme and for other uses. High throughput assays are also described.